RATIO

Technical Manual

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Microsoft® Windows® 2008 Server
Microsoft® Windows® XP Professional
Microsoft® Windows® Vista

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Technical manual

This technical manual gives further technical descriptions, explains some problem solutions and provides you with technical data and background information for the RATIO plot management system.

System requirements

Please read through the following recommendations carefully:

- **Operating system**
  The following schedule shows which operating systems and applications are compatible and which are not:

Operating System	Plotbase	Scan Option	Plotclient	Winprint & INF file	PPD	PC Web Server
Windows Vista 32 bit	yes	yes	yes	yes	no	yes
Windows Vista 64 bit	no	no	yes	yes	no	no
Windows XP Prof. 32 bit	yes	yes	yes	yes & INF	no	yes
Windows XP Prof. 64 bit	no	no	yes	yes & INF	no	no
Windows 2000 Prof.	no	no	yes	yes & INF	no	no
Windows 2008 Server	no	no	yes	yes	no	no
Windows 2003 Server	no	no	yes	yes & INF	no	no
MAC OS 9.x	no	no	no	no	yes	no
MAC OS 10.2/.3/.4/.5	no	no	no	no	yes	no

  The PLOTCLIENT WEB will be installed together with PLOTBASE on a Windows XP Professional or Windows Vista PC. You have access to the program via various browser programs installed on the server or the client PCs:
  - Mozilla Firefox >= 2.0
  - Microsoft Internet Explorer >= 6.0, SP 1
  - Macintosh PC Browser

- **Mainboards**
  You can only use mainboards which meet the PCIe standards.

- **Processor**
  Minimum Celeron with 2 GHz
  As the processor hardware changes fast in the market you can ask for an actual list if required.

- **PCI Express slot (X1)**
  If your computer does not fulfill this standard, it is possible that the plotter controller will not be identified.

- **Front Side Bus**
  Minimum Celeron with min. 400 MHz
- **System memory**
  At least 2GB RAM is required
- **Hard drive**
  The hard disk should have at least 100 GB free memory
- **Network interface/Configuration**
  10/100 Base T Ethernet (TCP/IP configuration necessary)
  or Novell Netware 6.5 SP6 with Novell Client 4.91 SP3
- **DVD drive**
- **Monitor**
  At least 1024 x 768 pixels resolution
  1280 x 1024 recommended

PC specifications

Following sample PC systems comply with the requirements. As hardware changes fast in the market following specifications can only be regarded as a guideline, valid as per June 2009:

Manufacturer	Model
Hewlett Packard	HP xw 4600 Workstation [2,66 GHz, Core 2 Duo E6850]
No-name	Asus P5B Board with Core 2 Quad
Dell	Vostro 400 [with Intel Core 2 Quad Q6600]
Dell	Dell Vostro 200 MT [D042010] - Core 2 Duo E4500 - 2048 MB 667MHz, DDR2 - 320 GB HDD Serial-ATA - Integrated graphic media accelerator X3100
Dell	Same as above, but also equipped with - 128 MB ATI Radeon HD 2400 - Extra graphic adapter avoids "shared memory" and gives better performance
Acer	Extensa E210 [Athlon 64 X2 5000+ Dual Core]
Acer	- Pentium-4 CPU 3200 - 250 GB HDD - NVIDEA Quadro PCI-e - Broadcom NetXtreme Gigabit - 4 GB RAM - Onboard graphic adapter memory changed from 256 MB to 32 MB
Acer	- Motherboard M2V - X1200 graphic on board - 200 GB HDD - Athlon 64 X2 4200+
Asus	- Motherboard A7V - ATI Rage XL graphic - 3COM 3C905 network - VIA Apollo KT133 chipset - 200 GB HDD - Athlon 64 3500+

Manufacturer	Model
Asus	- Motherboard A8N-SLI - Chipset NVIDEA nForce4 - ATI X300 SE graphic - 200 GB HDD - Athlon 64 3200+
Asus	- Motherboard P5AD2-E Deluxe - Chipset Intel 925XE - ATI X300 SE graphic - 200 GB HDD - Pentium D 3200+
Asus	- Motherboard P5WD2 - Chipset Intel 995X - ATI X300 SE graphic - 200 GB HDD - Pentium D 3200+
Asus	- Motherboard P5B - Chipset Intel P965 - Gainward 7600GS graphic - 200 GB HDD - Core 2 Duo E6600
Asus	- Motherboard M2V - Chipset VIA K8T890/VT8237A - Point of View 7600GS - 200 GB HDD - Athlon 64 X2 AM2 5000+
Asus	- Motherboard A7V600-X - AMD Sempron 3000+ - Asus Radeon A7000 graphic - Via Rhine II Fast Ethernet

Extend licenses

You can extend the functions of your system. To do this, you must install a new license file, which you can obtain from your dealer or the manufacturer. To install the file you require local administrator rights for the PLOTBASE computer:

1. First open a dialog with the menu command "Help - License Manager" or via "Start - Programs - RATIO - RATIO - RSP Manager".
   The currently installed licenses are first listed in the window.
2. If you now wish to install a new license file, click on "Update licenses".
3. You can see a small search symbol at the top of the window. Click on this symbol to open a file selection. Then select the new license file (*.rsp), which you have saved on you computer and confirm the selection with "Open".
4. You can check whether all the required options are contained in the file. Then click on "Install" in the lower section of the window. You will then be asked whether you really want to install the license file and overwrite the old file. Confirm accordingly.
5. Restart PLOTBASE so that you can use the new options.

Users and groups created in Windows

Following users will be created for the system:

- RATIO Plotservice user
- RATIO Webclient user
- RATIO Webserver

Attention: This chapter is primarily for information and it is not expected that any administrator modifies these users and their rights anyway! If you nevertheless need to modify them, excellent administrative skills are recommended to guarantee an error free use of your system!

RATIO Plotservice user

This user is a special account with administrative rights. You cannot and you may not log in with that account. Its password is intentionally unknown to everyone as it is created randomly during installation of your sytem!

This user account is used by the "plot service" and the "webserver". The "plot service" makes the connection between PLOTBASE user interface and the connected output devices. The "webserver" allows you to monitor the job processing via internet browser; this corresponds to the "Web watch" function in your software.

RATIO Webclient user

This user is a special account with administrative rights. You cannot and you may not log in with that account. Its password is intentionally unknown to everyone as it is created randomly during installation of your sytem!

This user account is used by the PLOTCLIENT WEB to provide your Client PC browsers with the PLOTCLIENT WEB user interface.

DWG and DXF

Printing DWG/DXF and DWG files

A full version from AutoCAD series 2000 to 2009 or the LibCAD must be installed on the server computer as a prerequisite for printing DWG, DXF and DWF formats.

To print DWG, DXF and DWF files in a new paper format which does not correspond to the normal standard sizes, the following settings have to be adjusted in your AutoCAD program:

1. Open the plotter manager under "File - Plotter Manager".
2. Choose a *.pc3 file. The name can differ slightly depending on the AutoCAD version:
   AutoCAD 2000: RATIOD6.pc3
   AutoCAD 2000i, 2002: RATIOD7.pc3
   AutoCAD 2004 - 2006: RATIOD8.pc3
   AutoCAD 2007 - 2009: RATIOD9.pc3
   Open the file belonging to your AutoCAD version with a double click.
3. Change to the "Device and Document settings" tab. Choose the setting "Custom Paper Sizes (Printable Area)" under "User-defined Paper Sizes & Calibration".
4. Click on "Add".
5. A small help program now shows you the individual steps for configuring a new paper size. In the first window, just click on the "Next".
6. Now enter the width and height of the new format. You can also select the units of measurement: inches or millimeters. Click on "Next" to confirm all entries.
7. Now enter the printable area on the defined sheet. Enter values for all four edges: "Top", "Bottom", "Left" and "Right". Click on "Next" to confirm all entries.
8. Enter a name for the new format. This name will be offered later in the format selection. Then click on "Next".
9. Now enter a name for the .pmp file which saves the format attributes. Then click on "Next".
10. You do not need to make any adjustments in the last window. Just click on "Next".
11. The "Plotter Configuration Editor" is still open. Click on "OK" to close it.

12. Now copy the changed .pc3 file which you opened at the beginning into the program directory of PLOTBASE (\\Program Files \ RATIO \ RATIO\ PLOTBASE \ Program).
13. This new format is now available in PLOTBASE.

Cutom paper sizes in LibCAD

This section describes how to setup custom paper sizes in AutoCAD and LibCAD 2008.

1. Open the directory "Documents and Settings\ <current user>\ Application Data\ RATIO\ LibCad 2008\ R11\ enu\ plotters".
2. Open the file "RATIOD9.pc3" with the program "pc3exe.exe" that is normally located in the directory "C:\ Program files\ RATIO\ LibCad2008".
   The "Plotter Configuration Editor" will open.
3. Change to the "Device and Document Settings" tab.
4. Choose the "Custom Paper Sizes" entry and click the button "Add" to create a new custom paper.
5. Choose "Start from scratch" and click "Next".
6. Enter the paper width, height and finally click "Next".
7. Enter the borders and click "Next".
8. Enter a name for the new paper size and click "Next".
9. Enter the "PMP file name". It is recommended to keep file name "RATIOD9".
10. Finally click "Finish".
11. When you have created a long paper size, you can see an extra dialog. Close the dialog with the "OK" button.
12. Now you can see your new paper size in the "Plotter Configuration".
13. Repeat steps 5 to 11 until you have added all your required sizes into this "Plotter Configuration".
14. Click "OK" to save your changes.
15. Finally copy the file "RATIOD9.pc3" to the program folder of PLOTBASE - as far as not being changed during installation - to "C:\ Program Files\ RATIO\ RATIO\ Program".
16. Additionally copy the file "RATIOD9.pc3" to the folder "Documents and Settings\ <RATIO_User>\ Application Data\ RATIO\ LibCad 2008\ R11\ enu\ plotters".

Network installations

Dealing with firewalls

Normally the Setup Launcher adapts the firewall settings by default. However, the automatic modifications may not have been done for following reasons:

- either you have intentionally skipped or stopped the firewall modifications during setup
- or you have installed another firewall than the Microsoft Windows firewall

If you stopped the modifications or if you use a firewall which is not the Microsoft Windows firewall, make sure that all necessary authorisations are issued. The following processes 'plotmanagerru.exe', 'plotserviceru.exe', 'adcapserverru.exe', 'webserverru.exe' and 'accountingserviceru.exe' must be given the authorisations for the following port access:

Protocol	Port	Service	Description
TCP	21	FTP	-
	80	HTTP	-
	8080	HTTP	-
	808x	HTTP	first free port following '8080' for using PLOTCLIENT WEB
	1108	ADCAP	-
	515	LPR	only required when using PLOTCLIENT MAC or 'lpr' command to send plot files
UDP	161	SNMP	-
	162	SNMP Trap	-
	1108	ADCAP	-
ICMP	-	-	at least incoming and outgoing "echo requests" (pings) must be allowed

In case of queries, please refer to the administrator responsible for your firewall.

Requirement of DNS service

Some components of PLOTBASE use network services, as for example LibCAD. If you are connecting the PLOTBASE computer to a network, a DNS (Domain Name Service) should be available in your network.
If you are using a simple network such as Workgroup network and there is no DNS available, enter "127.0.0.1" as DNS server for "Internet Protocol (TCP/IP)" in the network properties.

Changing computer names

If you want to change any computer names we recommend to do so before you actually install the software. If you nevertheless want to do that after the installation make sure that any DNS servers are completely updated and that all DNS caches on all client computers do reflect this change; in many cases a complete reboot will be necessary. To get more information ask your network administrator or refer to http://support.microsoft.com.
In any case make sure that after your modifications all client computers can actually retrieve the correct IP address of the server and vice versa. This is specially true, if you allow your DNS architecture to use double DNS PTR entries, which is not recommended as it requires are very fine setup and tuning of your network architecture.

Using remote spool folders

You have created a spool-folder on a remote computer. For security reasons in most network environments the access to such folders by system processes is not allowed. We recommend to use spool folders on your PLOTBASE computer. If you nevertheless wish to use spool folders on a remote computer, please make sure that "RATIO_USER" has sufficient rights to access that folder. For further questions please contact your network administrator or refer to engineers with a special training on system integration in networks.

Plotters

Hewlett-Packard

If you use an HP plotter you should make the following settings at the plotter panel to ensure a smooth processing of the plot jobs:

- in the Network settings, set the I/O timeout to its maximum value
- in the Job management settings, activate the job queue

Canon

Some Canon plotters suffer from a limitation in the ethernet connection. As a result the plotter is not automatically found. If this limitation occurs we recommend to connect the Canon device via USB connection.

PLOTBASE

Limitations

Maximum copy count of plot jobs

The maximum count of sheets of a plot job is limited to 6000. This is because the internal organisation of a job including it's error recovery feature requires a certain amount of memory resources. The maximum value is the total count of sheets that shall be ouputted by the job.

Example:
If a set contains three entries (E1, E2, E3) and if the entries are multipage files with ten, eleven and twelve pages, respectively, then the total count of sheets would be 10+11+12 = 33.
If this complete set shall be printed seven times the total sheet count would be 7 x 33 = 231, which is below to limit of 6000 sheets.
If, however, the complete set shall be printed 182 times, then the total sheet count would be 182 x 33 = 6006, which exceeds the maximum sheet count of 6000.
If the total number of sheets of your job exceeds 6000 then you should reduce the copy counts or remove entries from the job. You can also disable entries in the job.

PLOTCLIENT HDI

General notes

"Modify" option during setup
During the setup of PLOTCLIENT HDI a "Modify" option can be available. This should be used, if you updated your AutoCAD version and want to continue to use your PLOTCLIENT HDI with your new AutoCAD version. The function will make necessary adaptations such that you can use PLOTCLIENT HDI with your new AutoCAD version.
Make sure that your current PLOTCLIENT HDI supports your new AutoCAD version, otherwise you might better ask for an update of PLOTCLIENT HDI.

Installation of HPGL plotter

Before using PLOTCLIENT HDI with AutoCAD 13/14, an HPGL/2 plotter [HP DesignJet 1055 CM] has to be installed. This installation is described in the two sections below.

Note: For technical reasons AutoCAD and LibCAD may not be installed simultaneously on the same PC. This applies to the server PC and each client PC.

Installation in AutoCAD 13

1. Start AutoCAD 13 and open the configuration dialogue under the menu point "Options - Configure".
2. Press "Return" once.
3. Choose option 5 "Configure Plotter" and press "Return" to confirm.
4. Choose option 1 "Add A Plotter Configuration" and press "Return" to confirm.
5. Choose option 11 "HP-GL/2 Device" and press "Return" to confirm.
6. Choose option 1 "HP DesignJet 1055 CM" and press "Return" to confirm.

7. Press "Return" once.
8. Choose the option "Parallel Port" and press "Return" to confirm.
9. Press "Return" to confirm the port name.
10. Confirm your changes in the next step with "Yes".
11. Answer the question about changing the parameters with "No".
12. Answer the question about calibrating the printer with "No".
13. Answer the question "Write The Plot In A File" with "Yes".
14. Choose the required unit of measurement and press "Return" to confirm.
15. Press "Return" to confirm the defaults in the next step.
16. Press "Return" to confirm the defaults again in the next step.
17. Leave the rotation setting at "0" and press "Return" to confirm.
18. Answer the question "Remove Hidden Lines" with "No".
19. Choose the option "Fit" [on paper] and press "Return" to confirm.
20. Leave the plotter name as the default and press "Return" to confirm.
21. Choose the option "0" to leave the configuration.
22. Choose option "0" again to finish the dialogue completely.
23. Then choose option "Yes" to save the changes you have made, and press "Return" to confirm.
24. Close AutoCAD 13 and continue with the next chapter "Configuration".

Installation in AutoCAD 14

1. Start AutoCAD 14 and open the window "Preferences" under the menu point "File - Printer Setup".
2. Open the window "Add A Printer" by clicking on "New" once.
3. Choose option "HP-GL/2 Device" and press "OK" to confirm.
4. Choose option 4 "HP DesignJet 1055 CM" and press "Return" to confirm.
5. Press "Return" once.
6. Choose the option "Parallel Port" and press "Return" to confirm.

7. Perform steps 9. - 19. as described above in the section for AutoCAD 13.
8. Choose the new printer "HP DesignJet 1055 CM" and click on "Set Current".
9. Finish the dialogue with "OK".

Configuration

To configure PLOTCLIENT HDI you must carry out two further configurations. First via the program's own configuration tool and then in the print dialog of AutoCAD.

Note: For technical reasons AutoCAD and LibCAD may not be installed simultaneously on the same PC. This applies to the server PC and each client PC.

Configuration for AutoCAD 13/14 via configuration tool

If you have deactivated during installation the check box for the start of the configuration tool in step 9, start the configuration tool now via "Start - Programs - RATIO - RATIO - PLOTCLIENT HDI ADI - Config" and enter the following settings:

- **Select Program**

Select PLOTCLIENT, from which you wish to send your print jobs to PLOTBASE for printing. If you use the [HDI/]ADI Client, your presets always only apply for the current print job. If you take PLOTCLIENT, you can add several other print jobs to your current print job and have the same presets for all.

- **Select AutoCAD version**

If you work with one of the two AutoCAD versions R13 or R14, inform PLOTCLIENT which Version you use.

- **Configuration**

If AutoCAD 13 has not been installed with the standard paths, inform PLOTCLIENT the two paths in which the configuration file

"ACADNT.cfg" and initialization file "ACAD.ini" are. For AutoCAD 14 no settings are required.

After you have entered the settings in the configuration tool, you now only have to set up your new printer driver and enter the final presets in the print dialog of AutoCAD. You can then start printing.

Settings for AutoCAD 13/14 in print dialog

To set up the printer with the print dialog in AutoCAD 13 or 14 proceed as follows:

1. Start your AutoCAD program.
2. Open a drawing.
3. Use "File - Plot" to go to the print dialogue "Plot Configuration".
4. Click on the button "Device and Default Selection" and then make your choice from the list of HP-GL/2 printers (e.g. HP DesignJet 1055). Press "OK" to confirm.
5. Back in the window "Plot Configuration", in the section "Additional Parameters" activate the option "Plot To File". In the AutoCAD 14 dialogue, also activate "Autospool". Press "OK" to confirm.
6. When you start the printing procedure, the window "Select Printer" appears.
7. Press "OK" to confirm the default printer.
8. In the next window "Enter Plotserver IP", enter the name or IP address of the PC where PLOTBASE is running and press "OK" to confirm.
9. In the window "Enter Spool Directory", enter the required spool directory and press "OK" to confirm".
10. This brings you to the window with print parameter settings for PLOTCLIENT HDI.

Settings for AutoCAD 200x in print dialog

To set up the printer with the print dialog in AutoCAD 200x proceed as follows:

1. Start your AutoCAD program.
2. Open a drawing.
3. Use "File - Print" to open the window "Plotter Manager".

4. Open the dialogue "Add A Plotter Wizard" and click on "Next".
5. To select a printer, click on "My Computer" and click on "Next".
6. Select printer "PLOTCLIENT HDI" from the manufacturer list "RATIO" and click on "Next".
   If you cannot find the printer in the manufacturer's list, proceed with step 7. If the printer is listed, continue with step 10.
7. If the printer is not listed, select the option "Have disk".
8. Go to the "drv" directory of the PLOTCLIENT HDI program directory.
9. Enter the driver file you need for your AutoCAD and confirm with "Open":

   AutoCAD 2000: "DrvACAD2000.hif"
   AutoCAD 2000i, 2002: "DrvACAD2000i-2.hif"
   AutoCAD 2004 - 2006: "DrvACAD2004.hif"
   AutoCAD 2007 - 2009: "DrvACAD2007.hif"

   Now you can select the printer "PLOTCLIENT HDI" and click on "Next".
10. In the next window click on "Next" without importing a "PCP or PC2 file"!
11. In the next window, click on the option "Plot to File" and click on "Next".
12. Confirm the plotter name "PLOTCLIENT HDI".
13. Adjust the plotter configurations by clicking once on "Edit Plotter Configuration".
14. Open "Custom Properties" to adjust specific driver settings as well as the settings for medium and resolution:
    - **Server name**: PLOTCLIENT HDI can be used for printing on several plotters. Here please enter the name of the plotter to be used for printing. When you enter the name, usually the corresponding spool directory will appear automatically, then press "Return" to confirm. It is then entered directly in the box "Spool Directory".
    - **Spool directory**: If the right spool directory was not already offered automatically for you to choose, you can enter it here manually.
    - **Raster gamma correction**: With the gamma correc-

tion, to put it simply, you set the brightness of the print. The gamma correction can be used in all plotters, which work with raster data. You can set a value between 1 and 5, whereby 5 means the greatest brightness.

- **Choose program mode**: Here you can choose whether you always want to print your print jobs from AutoCAD as individual print jobs or whether you need to process several drawings in one drawing set together. If you want to process several drawings simultaneously for printing, activate "generate set with PLOTCLIENT". If you always only want to send individual jobs from AutoCAD to print and always want to use the same plot parameter settings, tell the program "do not display" this dialog. If you want to decide before each print and enter new print parameters, simply let this dialog be "Display" each time".
- **Plot color merge control**: You have two options to choose. By activating "Colors merge" all levels of your drawing will be merged. At parts, where two or more colors lie on top of each other, colors will be merged. If activating the option "Colors overwrite each other" higher levels overwrite completely levels below. Translucent parts do not overwrite any colour.

15. Quit the plotter settings by clicking on "OK" twice.

WINPRINT

Installation of INF file

By default the windows printer driver WINPRINT is installed on your computer together with your PLOTBASE software. Client computers can connect to this WINPRINT by Microsoft "point and print" technology.
An INF based WINPRINT is available on request or may be added to your product DVD.
It is usually used for following purposes:

- The customer wants to install WINPRINT onto a separate server computer [not the PLOTBASE computer]. Then the clients utilize the WINPRINT by "point and print" technology from this server. This is typically the case if a unique and centralized printer server is used in a company or if the user wants to avoid the 10-user limit of Windows XP and Windows Vista Business.
- The client wants to create sets with WINPRINT by printing single documents, which are automatically added to a set in PLOTCLIENT (DDE connection of WINPRINT into PLOTCLIENT).
- Others as for example in special project environments the INF based WINPRINT may be required.

The development of operating systems is continuously proceeding. Currently the following operating systems are supported:

WINPRINT INF can be installed on server:

- Windows 2000
- Windows XP SP2 x32
- Windows XP x64
- Windows 2003 Server

Users can share WINPRINT via point & print from server:

- Windows 2000
- Windows XP SP2 x32
- Windows XP x64
- Windows 2003 Server
- Windows Vista Business, Ultimate, Enterprise

- Windows 2008 Server

The two possibilities for installation on the PLOTBASE server PC and on a separate client PC are described here.

Installation on the PLOTBASE server PC

Installation of the INF file entails the following partial steps:

- Install port monitor
- Add port
- Configure port
- Install print driver
- Configure print driver
- Adjust device configuration [plotter, folder]

Install port monitor

1. Open "Print Server Properties" via "Start - Printers and Faxes - File - Server Properties".
2. Change to the "Ports" tab and click on "Add Port" to add the port monitor driver.
3. Click on "New Port Type".
4. Click on "Browse" and change to the DVD to get the port monitor's INF file.
5. Change to the folder "\Support\WIN_INF\Monitor" and open the correct folder with "monitor.inf" file depending on your [client] operating system.
6. Select the correct "monitor.inf" and click the "Open" button.
7. If the correct path appears in the "Installing Port Monitor" dialog click "OK" to continue.
8. If a "Windows logo testing" message appears click on "Continue Anyway".

Add port

9. To add the port now select "RATIO Monitor" and click the "New Port" button.
10. In the next dialog appears the name for the new port. Click "OK" to confirm the default port name "PbPort". If you change the port name, write down the new name for later use.
11. If the default spool path "C:\spool\cfg" does not yet exist on your computer an error message appears. Click on "OK" to be guided to the port configuration.

Configure port

12. To configure the port select "PbPort" in the "Print Server Properties" dialog and click on "Configure Port".
13. In the port configuration dialog enter an existing PLOTBASE spool directory (no UNC path) and click on "OK".
    If PLOTBASE does not run on the same computer you have to share this directory additionally!
14. Finally close the "Print Server Properties" dialog with "Close".

Install printer driver

15. Open "Start - Printers and Faxes".
16. Click "Add Printer" to open the "Add Printer Wizard" dialog.
17. In the "Welcome" page of the "Add Printer Wizard" click on "Next".
18. On the following page select "Local printer attached to this computer" and uncheck the "Automatically detect and install my Plug and Play printer" check box.
19. Click on "Next" to continue.
20. Select "Use the following port" and choose "PbPort" as port.
21. Click on "Next" to continue.
22. Click on "Have Disk" to install the printer driver.
23. In the "Install From Disk" dialog click on "Browse" and change to the DVD to get to the printer driver's INF file.
24. Change to the folder "\Support\WIN_INF\Printer" and open the correct folder with the "oemsetup.inf" file depending on your [client-] operating system.
25. Select the correct "oemsetup.inf" file and click on "Open".
26. If the correct path appears in the "Install From Disk" dialog, click on "OK" to continue.
27. In the "Add Printer Wizard" dialog select the WINPRINT and click on "Next".
28. If required you can assign a [new] name to the printer on the next page. Click on "Next" to continue.
29. In the next dialog select "Share name" and keep the default. Click on "Next" to continue.
30. Fill in the "Location" and "Comment" field as you like it and click on "Next" to continue.
31. If you want to print a test page select "Yes" on the configuration page and click on "Next" to continue.
32. Finally conclude the installation with "Finish".

33. If a "Windows logo testing" message appears, click on "Continue Anyway".

Configure WINPRINT

34. Open "Start - Printers and Faxes".
35. Click once on WINPRINT icon and open context menu item "Properties".
36. In the "WINPRINT Properties" window change to the "Device Settings" tab.
37. If you want WINPRINT to receive the plotter capabilities from PLOTBASE you have to select "Yes" in the "Receive Capabilities" field. If you do not want WINPRINT to receive the plotter capabilities enter "No" and continue with step 40.
38. If PLOTBASE is installed on the same computer as WINPRINT, leave the "Plotserver Name" field empty. If PLOTBASE is not installed on the same computer as WINPRINT, enter the name of the computer where PLOTBASE is installed.
39. Click on "OK" to finish the configuration. Only continue with step 40 when you chose "No" in step 37.
40. Set the number of trays of the connected plotter.
41. If a folder is connected to the plotter enter the value "128" in the next field, if no folder is connected enter "0".
42. Set the number of trays of the connected folder.
43. Click on "OK" to finish the configuration.

Installation on a separate client PC

If you want to run WINPRINT and PLOTBASE on different PCs and WINPRINT also runs on a different operating system [= client PC] then additional drivers have to be installed.

Installation of Windows XP 64 bit driver

1. Open "Start - Printers and Faxes".
2. Click once on WINPRINT icon and open context menu item "Properties".
3. In the "WINPRINT Properties" window change to the "Sharing" tab and click on "Additional Drivers".
4. In the "Additional Drivers" dialog select the "Windows XP" option and click on "OK".
5. In the next dialog click on "Browse" and change to the DVD.

6. Change to the corresponding Windows XP folder in "\Support\WIN_INF\Printer" and select the "oemsetup.inf" file.
7. Click on "Open" and confirm the displayed path to that file with "OK".
8. If a "Windows logo testing" message appears click on "Continue Anyway".
9. Conclude the Windows XP printer driver installation with "Close".

Communication with PLOTBASE on Vista

WINPRINT is an intelligent Windows printer driver. It communicates with the PLOTBASE server and displays current available settings like media, paper sizes, accounting fields etc. If you run WINPRINT for the first time, the Windows Firewall - on VISTA only - will note that and inform you about this bi-directional communication.
You should confirm the warning and allow WINPRINT to communicate with PLOTBASE. If you do not wish to see that dialog you can disable the firewall on your PC or you might ask your system administrator to disable the warning in the sytem policies. However, we do not recommend that.

Limitations

Microsoft Excel 2007

The function of WINPRINT depends on the correct function of your application software. If your application is erroneous then WINPRINT cannot produce correct results. For example it is known that some printouts contain empty pages when using Microsoft Excel 2007.

PLOTCLIENT LPR and FTP

If you wish to print from UNIX, Macintosh, Sun or other non Windows platforms once in a while you can easily use the PLOTCLIENT WEB.
If you wish to combine your, for example, CAD application running under UNIX in a more elegant way for frequent usage, you might consider to include lpr or ftp commands into your printing scripts. This is described in the following chapters.

PLOTCLIENT LPR

With the lpr protocol or command, you can send print jobs to PLOTBASE via the WINPRINT without having to use an application program. It also only requires a few presets and one command line. This printing option is especially intended for UNIX users.

Configuration on server PC with Windows

1. Start your Windows computer with PLOTBASE as the administrator.
2. [XP/2000] Open "Start - Settings - Control Panel - Add/Remove Programs - Add/Remove Windows Components" and activate "Other Network File and Print Services". [Vista] Open "Start - Control Panel - Programs and Features" and click on "Turn Windows Features on or off".
3. Activate with the option "print services" the associated subitem "LPD print service".
4. Confirm that WINPRINT is installed.
5. Check that the printer driver WINPRINT has been shared to the network, enabled and check the spool folder as follows.
6. Confirm that the printer name is "WINPRINT".
   The driver will direct all incoming jobs into spool folder C:\spool.
7. Confirm that the spool folder is correctly set up in PLOTBASE.

Note: If you want to see the full file name of your print

jobs in the PLOTBASE jobs list, deactivate the "Use Short File Names" option.

Print jobs with lpr on Windows

If you have entered all the settings described above, you can use the lpr command as follows to send print jobs to PLOTBASE via the WINPRINT:

1. Open the Prompt on the Windows computer of PLOTBASE.
2. Change to the folder containing the files to be printed.
3. Enter the following command:

lpr -S %computer name% -P "WINPRINT" -o l <filename>

= lpr -S PlotbaseComputer -P "WINRPINT" -o l plotfile.plt

-S = server name
-P = name of the enabled plotter
-o l = binary mode

If you send a file without print parameters to PLOTBASE, the PLOTBASE basic settings are used. If you want to send your own print parameters with the plot, you have to first send the CFG file, which must have the same name as the graphic file, and then send the graphic file itself!

Attention: Always send the CFG or SSL file with your print parameters first, then send the graphic file. Otherwise there is a risk that PLOTBASE begins to print your file before it has received your own print parameters for the print (CFG or SSL file).

Configuration on UNIX

1. Install the "General Network Services" - TCP/IP.
2. Then install the "BSD Print Spooling System". For SuSE>= V6.4 "LPROLD from Network Support"; TCP/IP, UUCP, Mail, News. If you use another UNIX operating system please refer to the corresponding manual!

3. Go to the folder "C:\ Program Files\ RATIO\ RATIO\ PLOTBASE\ TOOLS\ PLOTCLIENT_LPR" on the Windows computer of PLOTBASE and copy the file "printcap_sample" to UNIX as the file "/etc/printcap".
4. Adjust this file "/etc/printcap" to your network environment. The end of the file should include more or less the following:

```
lp | remote printer on <IP_Of_ServerPC>:\
:sd=/var/spool/lpd/lp:\
:rm=<IP_Of_ServerPC>:\
:rm=<IP_Of_Shared_Winprint>:\
:bk:sh:mx#0:
```

5. Restart the print service. For SuSE>= V6.4 "rclpd restart".

Print jobs on UNIX using lpr

If you have entered all the settings described above, you can use the lpr command as follows to send print jobs to the PLOTBASE via WINPRINT:

1. Open the prompt on the UNIX computer.
2. Enter the following command:

```
lpr -P <printeralias_from_printcap> -l <filename>
```

Note: There is a vast number of UNIX derivates and the syntax of the lpr command might differ from the above example. Please refer to the manual of your UNIX system and lpr command - usually invoked by "man lpr or lpr --help".

PLOTCLIENT FTP

You can use the ftp protocol or command to send print jobs to PLOTBASE without having to use an application program. It also only requires a few presets and one command line. This printing option is especially intended for UNIX users.

Configuration on server PC with Windows

1. Start your Windows computer with PLOTBASE as the administrator.
2. Use "Start - Settings - Control Panel - Add/Remove Programs - Add/Remove Windows Components - Networking Services" to ensure that the TCP/IP-protocol is installed.

Print jobs on Windows using ftp

If you have entered all the settings described above, you can use the ftp command as follows to send print jobs to PLOTBASE via the WINPRINT:

1. Open the Prompt on the Windows computer of PLOTBASE.
2. Change to the folder containing the files to be printed.
3. Enter the command "ftp [computer name or computer-IP]". The system changes to the ftp subsystem and sets up a network link to the required computer.
4. You are now asked for the name of the user. Enter "anonymous" and confirm with the return key.
5. Confirm the password query by simply not entering a password.
6. Now enter the "binary" command for transmission in binary mode and confirm with the return key.
7. Enter the following command if you want to print one file. If you want to print several files, proceed with Item 8. For one file, the command is:

   put <filename>

   = put graphics.tif

8. If you want to print several files at once, enter the following command:

   mput <filename> <filename> ...

   = mput graphics.tif city.plt

9. If a file comes from another folder than the current folder, enter the path as well as the file name, as shown in the fol-

lowing:

mput <filename> <path>\<filename>

= mput graphics.tif tmp\city.plt

If you send a file without print parameters to PLOTBASE, the PLOTBASE basic settings are used. If you want to send your own print parameters with the plot, you have to first send the CFG file, which must have the same name as the graphic file, and then send the graphic file itself!

Attention: Always send the CFG or SSL file with your print parameters first, then send the graphic file. Otherwise there is a risk that PLOTBASE begins to print your file before it has received your own print parameters for the print (CFG or SSL file):

mput graphics.cfg graphics.tif

Configuration on UNIX

1. Install the "General Network Services" - TCP/IP.
2. Then install the "BSD Print Spooling System". For SuSE>= V6.4 "LPROLD from Network Support"; TCP/IP, UUCP, Mail, News.

Print jobs on UNIX using ftp

If you have entered all the settings described above, you can use the ftp command as follows to send print jobs to the PLOTBASE via WINPRINT:

1. Open the prompt on the UNIX computer.
2. Change to the folder containing the files to be printed.
3. Enter the command "ftp [computer name or computer-IP]". The system changes to the ftp subsystem and sets up a network link to the required computer.
4. You are now asked for the name of the user. Enter "anonymous" and confirm with the return key.

5. Confirm the password query by simply not entering a password.
6. Now enter the "binary" command for transmission in binary mode and confirm with the return key.
7. Enter the following command if you want to print a file. If you want to print several files, proceed with Item 8. For one file, the command is:

put <filename>

= put graphics.tif

8. If you want to print several files at once, enter the following command:

mput <filename> <filename> ...

= mput graphics.tif city.plt

9. If a file comes from another folder than the current folder, enter the path as well as the file name, as shown in the following:

mput <filename> <path>\<filename>

= mput graphics.tif tmp\city.plt

If you send a file without print parameters to PLOTBASE, the PLOTBASE basic settings are used. If you want to send your own print parameters with the plot, you have to first send the CFG file, which must have the same name as the graphic file, and then send the graphic file itself!

Attention: Always send the CFG or SSL file with your print parameters first, then send the graphic file. Otherwise there is a risk that PLOTBASE begins to print your file before it has received your own print parameters for the print (CFG or SSL file):

mput graphics.cfg graphics.tif

PLOTCLIENT MAC

PPD file on Macintosh OS 9

MAC OS 9 has several limitations, especially for the user interface corresponding to a PPD file. For this reasons there is a special PPD file, which should be used by users, who are still using MAC OS 9.
Since MAC OS 9 is outdated since many years, the PPD file is not part of the standard installation. If you want to use it you will find it in the "Support" folder of your installation DVD.
Users working with MAC OS X or higher should use the PPD file, which is available in the "Clients" folder of your installation DVD or which is included in the "Tools" share as created by setup.exe.

To install the PPD file on Macintosh 9.x proceed as follows:

1. Save the PPD file on your Macintosh desktop. You find the file in the "Support\PLOTCLIENT MAC\OS9" folder on your installation DVD.
2. Select "New" from the "Desktop Printer Utility".
3. Select "LaserWriter 8".
4. Select "Printer (LPR)" and click "OK".
5. Use the "Change" button to change the PPD file to the PPD file, that you just saved in step 1 to your desktop.
6. In the same window, specify the host name or the IP address of the computer on which RW-7410 PLOTBASE is running.
7. For "Queue", enter the printer name that is assigned to WINPRINT on your PLOTBASE computer, typically this is "WINPRINT".
8. Finally, click "Create" and "Save" to create the printer icon on the desktop.
9. Then select "Quit" from the "File" menu.

Note: If you use this procedure to update your driver, then delete the old PPD file from the Macintosh system folder first!

Limitations

This chapter will list some limitations that will have little effect in the market but for some users is good to know:

Black/white TIFF files
If you experience unsufficient quality when printing and scaling up black/white TIFF files by PLOTCLIENT MAC, you might use PLOTCLIENT WEB to print it.

Non foldable media (on Macintosh OS 9)
You should not specify non foldable media when you also select a fold program. If you nevertheless do so, the job will fail at PLOTBASE.

Frequently asked questions

This chapter contains an overview of which commonly asked questions can arise when working with PLOTBASE and how you can solve them. See also the explanations about "error messages" in the PLOTBASE manual.
The topics are arranged in groups under terms, which are sorted alphabetically:

- **Jobs are not printed, indication "Please wait" in the status window**
  On the display of the plotter the interrupt button was activated. The plotter is in the offline mode and can't receive jobs from PLOTBASE. If you want to recreate the online mode, press the interrupt button.

- **Plotter is warming up**
  The plotter can be activated from any sleep mode by the program.

- **A file has not been included in the job list**
  1. Check the status bar, to see whether the interpreter is switched on. If this is not the case, you can activate it in the "Configuration" menu.
  2. Check whether the correct spool path is set in the corresponding PLOTCLIENT.

- **A file has not been plotted, the job status in the job list displays a "Problem" (Color red)**
  The reasons could be due to the following errors:
  1. General errors
     a. Check the messages in the PLOTBASE status window or select the job with a double click. The plotter must display the status "Pending".
     b. Ensure that the "Print" button is activated and not the "Pause" button.
     c. If you want to work in automatic print mode, ensure that the "Autoplot" mode is activated.
     d. Carry out a "Test plot", to check correct function of the plotter. For that select "Test Page" from context menu of the plotter.
     e. Check whether the "Interrupt" switch at the scanner

display has been activated. Deactivate it.

f. Check the connection cable between the scanner and server.

2. File error
   a. If a certain file type (PDF, CGM, or similar) cannot be printed, you must first acquire the relevant licenses for these optional file formats and install a license file.
   b. The file is possibly damaged. Send the file to PLOTBASE again or transfer the file to the server in another file format.
   c. A printed stamp is defined larger than the drawing format.
3. Others
   a. Check whether the required type of media is available.
   b. Check the width of the available plotter rolls.

- **A file has not been plotted, the job in the job list has the status "manual" (Color light blue)**
  The following reasons are possible:
  1. The job is password protected (Locked Print).
     The printout can only be started manually by the user after a password has been entered.
  2. Test print is activated.
     The printout has to be started manually, so that a test print can be plotted first.

- **Color drawings**
  Colors are represented in PLOTBASE by a raster density. You can set the "colors" in two different ways. Open the "Additional" tab in the job editor and click on the "Pen settings" button, if the entry is a HPGL/2 or Calcomp format. Here you can set each individual color for the respective format. Either you enter the gray scale for each individual color in percent or you set pens the pens to "Gray" and enter the required percentage value. See also chapters about "HPGL/2" and "Calcomp" in PLOTBASE manual.

- **Lines are not visible**
  If the file to be plotted is in a HPGL or Calcomp format, the color can be set too light or the pen widths are too small. See chapter about "HPGL/2" in PLOTBASE manual.

- **Printout plotted on an unexpected medium**
  The plotter can sometimes print on another roll that you expected, although you entered the default values correctly.
  This can be caused by the following:
  1. PLOTBASE has a plot logic, which is instructed to "waste" as little paper as possible when selecting the roll, to print as quickly as possible (preferred print direction in landscape format).
  2. As the roll sizes in PLOTBASE must be fixed without variances, it is necessary to print on a larger roll even if a drawing is only 0.1 mm larger than the roll selected by you. This can e.g. be the case if unfavorable pen widths or scaling have been selected. There are three possible ways to solve the problem:
     a) Scale the drawing to e.g. 99 %,
     b) Increase the setting for the number of "step sizes/cm": e.g. from 400 to 401. The drawing would be reduced to 99.75 %.
     c) Use a thinner pen width for the drawing frame.

- **Roll width settings of the plotter do not match with original roll width**
  Differences between the plotter roll settings and the original roll width may cause wrong roll selection by the program. Please compare the values and change the roll width settings at the plotter if necessary.

- **Quality loss**
  Especially in photos and drawings with lots of gray scales, scaling can lead to a loss of quality. This is because the CIS element [Contact Image Sensor] in the scanner only divides all gray scale values into black and white due to the black-white threshold value and gray scale values can therefore not be scales with the drawing.

- **Scaling**
  The following points must always be borne in mind when scaling drawings:
  1. Photos and drawings can result in a loss of quality. C.f. Quality loss.
  2. Note the minimum pen widths when scaling. C.f. Pen widths.

- **Pen widths**
  Ensure that you observe the minimum pen widths for vector images. Scaling a drawing smaller and scaling the pen widths too can lead to loss quality and information in the printout.

File formats

In the following chart all file formats are listed, that are supported by the PM system:

File formats	Color depth	Compression
TIFF - Tagged Image File Format Adobe Developers Association / June 3, 1992, Revision 6.0		
	1 Bit B/W	Uncompressed
		CCITT/3 1D
		FAX CCITT Group 3
		FAX CCITT Group 4
		Packbits
		Tiled FAX CCITT Group 4
		LZW
	4 Bit Gray	Uncompressed
		Packbits
		LZW
	4 Bit Palette	Uncompressed
		Packbits
		LZW
	8 Bit Gray	Uncompressed
		Packbits
		LZW
	8 Bit Palette	Uncompressed
		Packbits
		LZW
	24 Bit RGB	Uncompressed
		Packbits
		LZW
	32 Bit CMYK	Uncompressed
		LZW
BMP - Windows Bitmap Format Size limits apply		
	1 Bit B/W	Uncompressed
	4 Bit Palette	Uncompressed

	8 Bit Gray	Uncompressed
	8 Bit Palette	Uncompressed
	24 Bit RGB	Uncompressed
BMP OS/2 - Windows Bitmap Format Version 1.1 - 1.3 and 2.0 / Size limits apply		
	1 Bit B/W	Uncompressed
	4 Bit Palette	Uncompressed
	8 Bit Gray	Uncompressed
	8 Bit Palette	Uncompressed
	24 Bit RGB	Uncompressed
PCX ZSoft Paintbrush File Format, Version 2.x to 5.x / Size limits apply		
	1 Bit B/W	Run length
	4 Bit Palette	Run length
	8 Bit Gray	Run length
	8 Bit Palette	Run length
	24 Bit RGB	Run length
PNG ISO/IEC JTC 1 SC 24 - ISO/IEC International Standard 15948		
	1 Bit SW	Interlaced
		Non interlaced
	4 Bit Grau	Interlaced
		Non interlaced
	4 Bit Palette	Interlaced
		Non interlaced
	8 Bit Grau	Interlaced
		Non interlaced
	8 Bit Palette	Interlaced
		Non interlaced
	24 Bit RGB	Interlaced
		Non interlaced
T6X RATIO Entwicklungen GmbH		
	1 Bit B/W	FAX CCITT Group 4

Calcomp Calcomp Technology Inc.		
	4 Bit Palette	-
CALS - Computer Aided Acquisition and Logistics Support Raster Format DODISS (Department of Defense Index of Specifications and Standards)		
	1 Bit B/W	MIL-STD 28002A
		MIL-STD 1840B
CIT Intergraph Version 3.2.0 / SDN 84-007 Intergraph Corporation		
	1 Bit B/W	FAX CCITT Group 4
		FAX CCITT Tiled Group 4
JPEG – Joint Photographic Expert Group CCITT – The International Telegraph and Telephone Consultative committee		
	8 Bit Gray	Baseline
		Progressive
	24 Bit RGB	Baseline
		Progressive
HPGL, HPGL/2 Hewlett-Packard Graphics Language / Hewlett Packard		
	1 Bit B/W	HPGL
	4 Bit Gray	HPGL
	4 Bit Palette	HPGL
	8 Bit Gray	HPGL
	8 Bit Palette	HPGL
	24 Bit RGB	HPGL
HP-RTL - Hewlett-Packard RTL Hewlett-Packard Raster Transfer Language / Hewlett Packard		
	1 Bit B/W	HP-RTL
	4 Bit Gray	HP-RTL
	4 Bit Palette	HP-RTL
	8 Bit Gray	HP-RTL
	8 Bit Palette	HP-RTL
	24 Bit RGB	HP-RTL

Postscript Adobe Systems		
	1 Bit B/W	PS , EPS
	4 Bit Gray	PS , EPS
	4 Bit Palette	PS , EPS
	8 Bit Gray	PS , EPS
	8 Bit Palette	PS , EPS
	24 Bit RGB	PS , EPS
PDF - Portable Document Format Adobe Systems, Version up to 1.6		
	1 Bit B/W	FAX CCITT Group 4
		Packbits
	4 Bit Gray	Packbits
	4 Bit Palette	Packbits
	8 Bit Gray	Packbits
		ZIP
		LZW
	8 Bit Palette	Packbits
		ZIP
		LZW
	24 Bit RGB	ZIP
		LZW
VIC OCÉ		
	1 Bit B/W	VIC
	4 Bit Gray	VIC
	4 Bit Palette	VIC
	8 Bit Gray	VIC
	8 Bit Palette	VIC
	24 Bit RGB	VIC
DWF Autodesk DWF toolkit / no 3D		
	1 Bit S/W	DWF
	4 Bit Grau	DWF
	4 Bit Palette	DWF

	8 Bit Grau	DWF
	8 Bit Palette	DWF
DWG Autodesk		
	8 Bit Palette	ASCII
		Binary
DXF Autodesk		
	8 Bit Palette	ASCII
		Binary

The file formats DWF, DWG, DXF can be used if you have installed the optional LibCAD on your server PC.

Creating SSL files

The structure and commands of the SSL files are described in this chapter. You can use the SSL commands to configure the print job yourself. There are three classes of SSL commands: Structured commands, SSL commands and parameters.
This description explains the structured commands first, then follows an alphabetical list of the SSL commands with the corresponding parameters.

Structured commands

A job begins with BeginJob <name> and ends with EndJob. The defaults for the plot files are defined immediately below BeginJob, and are based on commands related to the set and plot file. The block with commands for the plot file starts with BeginOutput and ends with EndOutput.

Structured command:	**Syntax:**	**Example:**
BeginJob	BeginJob <name>	BeginJob Project 1
EndJob	EndJob	-
BeginOutput	BeginOutput	-
EndOutput	EndOutput	-

Example 1:

```
BeginJob Project 6
    Comment: EntryA
    BeginOutput
        OutputSize A4
        Name "file2.plt"
        Directory "C:\spool\ssl\Project 1"
    EndOutput
    Comment: EntryB
    BeginOutput
        OutputSize A2
        Copies 2
        Name "file3.plt"
        Directory "C:\spool\ssl\Floorplan 3"
```

```
    EndOutput
EndJob
```

Example 2:

```
BeginJob            Floorplan
Copyright           "2008 Master"
CreationAppl        "BSP R1.01"

Comment             Job Settings
JobName             "TEST_1"
UserName            "RED"
Account             "MAGIC"
Notes               "TEST EXAMPLE"
Distribution        "To: ABC, XYZ "
Copies              2
JobCollate          on
JobFlagSheet        Job
...

; Input Defaults
OrigDirectory       "C:\Test"
HpglPens            off
FileEmulation       auto
....

; Output Defaults
Stamp               text "COMPANY STAMP"
+                   position bottomleft coordinate 100 100
Zoom                100. 100.
Rotate              270
...

BeginOutput
Stamp               off
Zoom                100. 100.
Rotate              auto
MediaType           paper
Name                "PLOT.000"
EndOutput
```

```
BeginOutput
...
Stamp                off
Name                 "PLOT.001"
...

EndOutput

EndJob
```

SSL commands

For each SSL command you will find descriptions, which are labeled with the abbreviations SC, C, SY, D. They mean the following:

- **SC (Scope):**
  This describes where the command can be placed. JOB is in the area between *BeginJob* and the first *BeginOutput*. Here there are commands, which always affect a set as a whole, e.g. *Customer* or *e-mail*, and the defaults for the SSL commands, which concern the entries. For some SSL commands there are no meaningful defaults, e.g. Name, these are only in the ENTRY area. The ENTRY area is located between a *BeginOutput* and the corresponding *EndOutput*. This is where the commands are, which exactly concern a plot file, namely those, which are clearly labeled with *Name* and *Directory*. A command in this area has the highest priority, it overlays other instructions from the defaults area (JOB). If a command is not listed here, the corresponding entry from the JOB applies.
- **C (comment):**
  This contains a description of the meaning of the command as well as the range limitations, which do not result from the syntax.
- **SY (Syntax):**
  This is where the command syntax is written in the form of an EBNF (Extended Backus-Naur Form).
  Notes on EBNF:

- A production is represented by =.
- An exclusive Or by |
- Nonterminal symbols are labeled with pointed brackets: <String>
- Any number of symbols (including none) by round brackets with asterisk: (<Digit>)*
- More than one symbol with round brackets with Plus : (<Digit>)+
- One or no symbols with round brackets with question mark: (<Whitespace>)? A normal arithmetic bracket is also round: (a | b)

- **D (Default):**
  This is where the program defaults are if there is no SSL (and no default.ssl).

The SSL commands are listed in the following. There are three different types of SSL commands, which are labeled in different ways:

+	Currently supported commands
edit	Commands, that you can edit
No mark	Commands, which are not supported in this product

Account **+ / edit**

SC = JOB

C = Any text, which is output in the account. Any alphanumeric string is valid.

SY = Account <string>

D = -

AddStrip

SC = JOB, ENTRY

C = replaced by → Margin top or → Margin bottom

SY = AddStrip <addstrip>

<addstrip> = leading <real> (<unit>) ? trailing <real> (

<unit>)?

D = -

ArchiveReference +

SC = JOB, ENTRY

C = any text, which is stored in the archive, to label the drawing. Any alphanumeric string is valid.

SY = ArchiveReference <string>

D = -

CalComp + / edit

SC = JOB, ENTRY

C = settings for Calcomp files

SY = CalComp (<calcomp>)+

<calcomp> = (filepensize (on | off)) | (penscale (on | off)) | (minwidth <real>) | (maxwidth <real>) | (stepsize <int>) | (patterntype (random | circle | orderedd ither)) | (ignorepensize (on | off)) | (autodetect (on | off)) | (checksum (on | off)) | (doublesync (on | off)) | (eom <int>) | (sync <int>)

D = auto, auto, 800, auto, auto (not current)

CalcompColorEmulation +

SC = JOB, ENTRY

C = Determines the corresponding gray scale values for the pen colours, only for CalcompPens from the SSL.

SY = CalcompColorEmulation (color <color> saturation <int>)+ <color> = black | white | green | red | yellow | blue | magenta | cyan | darkyellow |darkgreen | darkred | darkblue | darkmagenta | darkcyan | gray

D = -

CalcompPens **+ / edit**

SC = JOB, ENTRY

C = Pen settings for Calcomp files

SY = CalcompPens (off | <custompen>)

<custompen> = (number (<int> | <int> - <int> | all) <pensettings>)+ <pensettings> = width <real> color <int> saturation <percent> (pattern <patterntype>)?
<patterntype> = circle | random

D = off

Comment or ';' **+ / edit**

SC = JOB, ENTRY

C = any comment up to the end of the row is ignored and is lost when processed by the program. See also **Note**.

SY = Comment <any> or ; <any>

D = -

Confirmation

SC = JOB

C = When switched on, stops the processing after the first plot. Replaced by **TrialPrint**

SY = Confirmation (off | on)

D = off

Copies **+ / edit**

SC = JOB, ENTRY

C = Number of copies, in JOB only default for the ENTRIES.

SY = Copies <int>

D = 1

Copyright **+**

SC = JOB

C = Text, which identifies the Copyright. Can be used in the stamp.

SY = Copyright <string>

D = -

CostCenter **+**

SC = JOB

C = Text, which identifies the account. Interesting for an accounting module.

SY = CostCenter <string>

D = -

CreationAppl **+**

SC = JOB

C = Text, which identifies the generating applications.

SY = CreationAppl <string>

D = -

Customer **+ / edit**

SC = JOB

C = Text, which identifies the job's customers.

SY = Customer <string>

D = -

CutMethod **+ / edit**

SC = JOB, ENTRY

C = standard: Standard formats are cut. synchro: The cuts match the plot.

SY = CutMethod (standard | synchro)

D = synchro

DeleteAfterPlot +

SC = JOB

C = The whole job is deleted after plotting and does not remain in the history.

SY = DeleteAfterPlot (on | off)

D = off

Directory +

SC = ENTRY

C = The directory, in which the plot file is, absolute paths are not currently possible, therefore, SSLs can not be simply copied with your image directories.

SY = Directory <string>

D = -

Distribution + / edit

SC = JOB

C = Distribution, which can be printed on the JobFlagSheet.

SY = Distribution <string>

D = -

EarliestPlotTime

SC = JOB

C = Earliest time at which the set is to be printed.

SY = EarliestPlotTime "YYYY:MM:DD:hh:mm"

D = -

E-Mail + / edit

SC = JOB

C = E-mail address to which a message is sent, when the plot job has been completed.

SY = Email (off | all <string>)

D = off

FileEmulation +

SC = JOB, ENTRY

C = Gives the file format of the plot file, if auto, the plot software decides which format is available.

SY = FileEmulation (auto | Calcomp | CALS | HPGL | HPGL2 | PCX | TIFF | MTF)

D = auto

HeaderPosition + / edit

SC = JOB, ENTRY

C = Gives where the drawing header is located. Important for folding, so that the header is visible on the top of the folded package

SY = HeaderPosition (ul | upperleft | ur | upperright | ll | lowerleft | lr | lowerright | unknown)

D = lr

Hpgl +

SC = JOB, ENTRY

C = filepensize on: Pen sizes from the plot file; off: Pen widths from the ENTRY filepencolor on: Pen colors from the plot file; off: Pen colors from the ENTRY penscale on: Pen widths are scaled too; off: Pen widths are preserved clipping on: Drawing size is taken from the file; off: Drawing size is calculated from the vectors minwidth: minimum pen width after scaling (see penscale) maxwidth: maximum pen widths after scaling (see penscale) stepsize: Steps per centimeter patterntype : Fill pattern for the gray implementation ignorepensize on:

Pen widths are ignored when calculating the sizes; off: Pen thicknesses are taken into consideration when calculating the sizes, can lead to changes in the plot size when changing the pen widths. bicolorrgb: Only for two-color plotters, represents one color channel on the second page. 0 = red, 1 = green, 2 = blue dithermode: for HPGL / RTL

SY = Hpgl (<HpglStatement>)

<HpglStatement> = (filepensize (on | off)) | (filepcolor (on | off)) | (penscale (on | off)) | (minwidth <real>) | (maxwidth <real>) | (stepsize <int>) | (patterntype (random | circle | loadablepattern | ordereddither)) | (ignorepensize (on | off)) | (bicolorrgb (0 | 1 | 2)) | (dithermode (ordereddither | errordiffusion))

D = filepensize on, filepencolor on, penscale off, minwidth 0 (mm), maxwidth 10 (mm), stepsize 400, patterntype loadablepattern, ignorepensize off, bicolorrgb 0, dithermode ordereddither

HpglColorEmulation +

SC = JOB, ENTRY

C = Determines the gray scale values corresponding to the pen colours, only for HpglPens from the SSL.

SY = HpglColorEmulation (color <color> saturation <int> (page (0 | 1))?)+

<color> = see *CalcompColorEmulation*

D = -

HpglPens +

SC = JOB, ENTRY

C = Pen settings HPGL Plots, saturation 0 -100 (white-black), pens 0 - 255. Are only effective, if *filepensize* and *filepencolor* in *Hpgl* are set to off.

SY = HpglPens (off | <custompen>)

<custompen> = see ***CalcompPens***

D = off

Invert **+ / edit**

SC = JOB, ENTRY

C = inverts the plot

SY = Invert (on | off)

D = off

JobCollate **+ / edit**

SC = JOB

C = on: Sorts the plots in sets (123123); off: Prints the same plots one after the other (112233) only effective if *SetCopies* > 1:

SY = JobCollate (on | off)

D = on

JobFlagsheet **+ / edit**

SC = JOB

C = The flagsheet is an information sheet, which can be printed off for unsorted issue per set or for sorted issue per set copy. As a standard, it contains the stamp and the file names, further control commands are possible: job / set = One sheet per set / set copy; text = Free text with macros; header / trailer = in front of or behind the set; tray <int> = roll from which the info sheet is to be printed; size = paper size, if not given: A4; account = with *account* text; distribution = with *distribution* text, prg = a folding program, so that the flag sheet also lies on the folded stack of images.

SY = JobFlagsheet (off | <Infosize>)

<Infosize> = (job | set) (text <string>)? (header | trailer)

tray <int> size <papersize> (account)? (distribution)? (prg <int>)?

D = off

JobName **+ / edit**

SC = JOB

C = Name of the set (= File name without extension)

SY = JobName <string>

D = -

JobPlotter **+**

SC = JOB

C = Controls the printout on a certain plotter, if several plotters are connected to the plot server (PLOTSERVER)

SY = JobPlotter (auto | <string>)

D = auto

JobPriority **+**

SC = JOB

C = Priority of the jobs in the queue

SY = JobPriority (high | normal | low | wait | immediate)

D = normal

Margin **+ / edit**

SC = JOB, ENTRY

C = Adds a white margin to the drawing.

SY = Margin (off | all <real> <unit> | (<margins>)+)

<margins> = (right <real> (<unit>)?) | (left <real> (<unit>)?) | (top <real> (<unit>)?) | (bottom <real> (<unit>)?)

D = off, values not given: 0.

MediaFeed **+**

SC = JOB, ENTRY

C = Behavior if the desired paper format is not available: larger = on larger format; smaller = on smaller format; exact = printout only on the matching format; manual = the operator must insert the paper manually

SY = MediaFeed (larger | smaller | exact | manual)

D = exact

MediaPosition **+**

SC = JOB, ENTRY

C = Position of the plot on the paper.

SY = MediaPosition (auto | <position>)

<position> = ul | upperleft | uc | uppercenter | ur | upperright | lc | leftcenter | cc | centercenter | rc | rightcenter | bl | bottomleft | bc | bottomcenter | br | bottomright

D = ul

MediaType **+ / edit**

SC = JOB, ENTRY

C = Medium, on which the plot is printed.

SY = MediaType ((bond | paper) | recycled paper | (vellum | transparent) | (film | polyester) | dontcare)

D = dontcare

Mirror **+ / edit**

SC = JOB, ENTRY

C = Mirror about the x- or y-axis

SY = Mirror (off | x | y | xy)

D = off

Name **+ / edit**

SC = ENTRY

C = Name of the plot file

SY = Name <string>

D = -

Notes **+ / edit**

SC = JOB, ENTRY

C = Comment on job / Plot, is retained during processing

SY = Notes <string>

D = -

OnError

SC = JOB

C = Reaction to errors; abort = abort set and continue with the next set; continue = continue with the next entry; query = display message and hold the plot until operator intercedes.

SY = OnError (abort | continue | query)

D = continue

OperatorMode

SC = JOB

C = on: The plot software calls the operator when plotting the job.

SY = OperatorMode (on | off)

D = -

OrigDirectory **+**

SC = ENTRY

C = Path, in which the original file is

SY = OrigDirectory <string>

D = -

OrigName +

SC = ENTRY

C = Name of the original file

SY = OrigName <string>

D = -

OutputBin + / edit

This is for the Input tray.

SC = JOB, ENTRY

C = Roll to be plotted from.

SY = OutputBin (auto | manual | Bin <int>)

D = auto

OutputSize + / edit

SC = JOB, ENTRY

C = choice of the paper format. window: customer-specific format, image is distorted. proportional: customer-specific format, image proportions are retained.
auto: the zoom setting determines the size of the print-out.

SY = OutputSize (auto | manual | <papersize> | <window> | <proportional>)

<papersize> = <DIN> | <ANSI> | <ARC>
<DIN> = (DIN)? (A | B | C)(0 | 1 | 2 | 3 | 4 | 5)
<ANSI> = ANSI (A | B | C | D | E)
<ARC> = ARC (A | B | C | D | E)
< window > = window <real> <real> (<unit>)?
<proportional> = proportional <real> <real> (<unit>)?

D = auto

OutputTray +

SC = JOB

C = For plotters with two trays (front/ rear) auto: If the set is to be folded, the whole set is sent to the folder side. If no folding, the set comes out of the facedown tray default: A default can be set at the plot server, if e.g. only one tray is accessible. front / rear: the specific output

SY = OutputTray (auto | default | front | rear)

D = auto

Pens

SC = JOB, ENTRY

C = now → *HpglPens*

Placement

SC = JOB, ENTRY

C = Position of the plot on the paper: in x and y co-ordinates, or as a simple position

SY = Placement (<real> <real> <unit> | <position>)

<position> = ul | upperleft | uc | uppercenter | ur | upper-right | lc | leftcenter | cc | centercenter | rc | rightcen-ter | bl | bottomleft | bc | bottomcenter | br | bottomright

D = ul

Profile

SC = JOB

C = Identifier for a profile

SY = Profile <string>

D = -

RemoveStrip

SC = JOB, ENTRY

C = Cut the image now → *Margin*

SY = RemoveStrip <removestrip>

<removestrip> = leading <real> (<unit>)? trailing <real> (<unit>)?

D = -

Rotate **+**

SC = JOB, ENTRY

C = Rotate the image

SY = Rotate (auto | 0 | 90 | 180 | 270)

D = auto

SecurityPrint **+**

This is for "Locked Print".

SC = JOB

C = The set remains in the queue and is not plotted, until a password is entered. After the password is entered the set is given the priority immediate and DeleteAfterPlot. The set cannot be edited without a password.

SY = SecurityPrint (off | on | "<code>")

<code> = 32 Hex Digits == MD5SUM(<Password>)

D = off

SetCopies **+ / edit**

SC = JOB

C = Number of set copies only in JOB.

SY = SetCopies <int>

D = 1

Stamp **+ / edit**

SC = JOB, ENTRY

C = The plot is stamped with one or several defaults. Parameter: name : freely definable name of the stamp. text : The text, which is stamped on. position : Where the image is stamped. font, size, -attribute : Typeface, size and style. bmp : an image can also be stamped on. Name and path of the image. bmporientation : where is the image with relation to the stamp text. bmpdistance : Distance between stamp text - stamp image. framesize : Thickness of the frame surrounding the stamp. frametextdistance : Distance of the frame from the text. mirror, rotate : Mirror and rotate (0 - 359°) the stamp. color : Gray scale value. overlay : type of cover if the stamp covers drawing contents. numbering : Start number for numbering the plots for *Copies* > 1.

SY = Stamp (off | <customstamp>)

<customstamp> = <stampid> (<stampoption>)*

<stampid> = name <string> text <string>

<stampoption> = (position <stpposition> (coordinate <real> <real>)?) | (font <systemfont>) | (fontsize <int>) | (fontattribute (normal | bold | italic | underline | strikeout)) | (bmp <string>) | (bmporientation <bmpposition>) | (bmpdistance <real> (<real>)?) | (framesize <real>) | (frametextdistance <real>) | (mirror (off | x | y | xy)) | (rotate <int>) | (color (black | darkgray | gray | lightgrey | level <percent>)) | (overlay (off | invert | transparent | opaque)) | (numbering (off | <int>))

<bmpposition> = ul | upperleft | uc | uppercenter | ur | upperright | lc | leftcenter | cc | centercenter | rc | rightcenter | bl | bottomleft | bc | bottomcenter | br | bottomright

<stpposition> = ul | upperleft | uc | uppercenter | ur | upperright | lu | leftupper | lc | leftcenter | lb | leftbottom |

cc | centercenter | ru | rightupper | rc | rightcenter | rb | rightbottom | bl | bottomleft | bc | bottomcenter | br | bottomright

D = off

TrialPrint **+**

This is for "Sample Print".

SC = JOB

C = The first copy of the set is plotted, then an operator input is waited for, to say whether the other copies are also to be printed.

SY = TrialPrint (on | off)

D = off

Units **+**

SC = JOB

C = Unit of the job size information.

SY = Unit (cm | mm | inch | (points | pt | pixel))

D = mm

UserName **+ / edit**

SC = JOB

C = User name to be able to assign the jobs.

SY = UserName <string>

D = -

Zoom **+ / edit**

SC = JOB, ENTRY

C = Scaling factor. Determines the size of the drawing on the selected paper (*OutputSize*). auto : adjusts the drawing to the paper size. papersize : scales the drawing to a certain format. Two whole numbers scale the drawing in proportion to its original size.

SY = Zoom (auto auto | <papersize> | <float> <float>)

Creating CFG files

This chapter explains the CFG file structure and commands. CFG files are usually produced normally automatically and are sent with the corresponding drawing files to the PLOTBASE. They contain the settings for the print off.
You can use the CFG commands explained in this chapter to produce your own CFG file. To do this, you only need a simple text editor. Save the file when ready as <Filename>.cfg.
The CFG file and the drawing file must have the same name. Example files: tiger.cfg, tiger.tif. Copy this CFG file together with the drawing file in the spool directory (e.g. C:\spool\cfg) of the PLOTBASE. Always send the CFG files first, then the drawing files. Otherwise there is a risk that the drawing file is automatically processed and plotted, before the actual print settings in the CFG file are available.

A CFG file could be constructed as follows:

```
COPYCOUNT =  1
ROTATE = 270
MIRROR = OFF
FOLD = OFF
BORDERACTIVE = ON
BORDERSAME = OFF
BORDERTOP = 5
BORDERBOTTOM = 5
BORDERLEFT = 20
BORDERRIGHT = 5
MEDIUM = PAPER
SCALEMODE = PERCENT
SCALEAUX1 = 10000
FILEPENS = ON
PEN001 = 0.25,BLACK
PEN002 = 0.35,BLACK
PEN003 = 0.5,BLACK
PEN004 = 0.7,BLACK
PEN005 = 0.1,BLACK
PEN006 = 0.5,GRAY,10
PEN007 = 0.5,GRAY,40
PEN008 = 0.5,GRAY,60
STEPSPERCM =  400
```

A CFG file contains the following entries:

Entry	Values	Example	Explanation
INPUTBIN	AUTO 1..n	AUTO	Input tray
CUT	ON OFF	ON	Cut immediately after the plot is finished (synchronous cut)
COPYCOUNT	1..999	1	Number of copies
ROTATE	AUTO 0 90 180 270	AUTO	Rotation of the document (anti-clockwise)
INVERT	ON OFF	OFF	Inverts the document
MIRROR	OFF X Y XY	OFF	Mirror the document about a certain axis
FOLD	OFF 1..xx	OFF	Folding program of the connected folder
SCALEMODE	ORIGINAL PERCENT FORMAT WINDOW	ORIGINAL	Scaling mode to be used
SCALEAUX1	ORIGINAL: not used PERCENT Percent times 100 FORMAT: DIN A0..DIN A6 WINDOW: Width in 1/1200 inches	-	Defines additional scaling details.
SCALEAUX2	WINDOW: Height in 1/1200 inches	-	Only used in "Window" scaling mode
MEDIUM	FILM TRANSPARENT PAPER DONT CARE	PAPER	
PRIORITY	NORMAL [HIGH] [LOW] [WAIT]	NORMAL	

Entry	Values	Example	Explanation
USER	...	JOHN SMITH	
ORIGINALFILE	...	C:\DEMO\ LAND.PLT	
CALCOMP PEN01	Pen width of the pen 01 in 1/1000 mm	250	The resulting value must not exceed 32 pixels
CALCOMP PEN02..PEN16	0..32Pixel	250	as above
STEPSPERCM	1..9999	800	Steps per cm
CCCHECK	ON OFF	OFF	Check sum in Calcomp file
CCSYNC01	<Characters>	2	Calcomp: ASCII-Code of the first sync character
CCSYNC02	<Characters>	0	as above for second sync character
CCENDCHAR	<Characters>	3	Calcomp: ASCII-Code for end character
HPGL / HPGL2 PEN000	0..9.99 mm, <COLOR>	0.36,WHITE	Pen thicknesses in mm for HPGL pens Tip: HPGL pen numbers have three digits.
HPGL / HPGL2 PEN001	0..9.99 mm, <COLOR>	0.36,GRAY, 50	
HPGL / HPGL2 PEN002..PEN255	0..9.99 mm, <COLOR>	0.36,BLACK	as above
RED	BLACK WHITE GRAY	GRAY, 50	Red pins are printed off in certain colors
GREEN	dto	BLACK	as above
YELLOW	dto	BLACK	as above
BLUE	dto	BLACK	as above
MAGENTA	dto	BLACK	as above
CYAN	dto	BLACK	as above
DARKRED	dto	BLACK	as above
DARKGREEN	dto	BLACK	as above
DARKYELLOW	dto	BLACK	as above
DARKBLUE	dto	BLACK	as above
DARKMAGENTA	dto	BLACK	as above
DARKCYAN	dto	BLACK	as above
BORDERACTIVE	ON OFF	OFF	Activates border around the plot

Entry	Values	Example	Explanation
BORDERSAME	ON OFF	ON	All borders are the same as BorderTop
BORDERTOP	0..xxxx	0	Borders in mm
BORDERBOTTOM	0..xxxx	0	as above
BORDERLEFT	0..xxxx	0	as above
BORDERRIGHT	0..xxxx	0	as above

HPGL/2 commands and pens

In this chapter we have listed all the HPGL/2 commands that the program fully or partially supports:

\+ = command is fully supported
~ = command is partially supported

- **Configuration and status group**:

DF = +
IN = +
IP = +
IR = +
IW = +
PG = +
RO = +
SC = +

- **Vector Group**:

AA = +
AR = +
AT = +
CI = +
PA = +
PD = +
PE = +
PR = +
PU = +
RT = +

- **Polygon Group**:

EA = +
EP = +
ER = +
EW = +
FP = +
PM = +
RA = +

RR = +
WG = +

- **Line and Fill Attributes Group**:

AC = +
FT = +
LA = ~
LT = +
PW = +
RF = +
SM = +
SP = +
UL = +
WU = +

- **Character Group**:

AD = ~
CP = +
DI = +
DR = +
DT = +
DV = +
ES = +
LB = +
LO = +
SA = +
SD = ~
SI = +
SL = +
SR = +
SS = +
TD = +

- **Technical Graphics Extensions**:

BP = +
CT = +
DL = +
MC = +
PS = +

- **Palette Extension**:

CR = +
NP = +
PC = +
SV = +
TR = +

- **Dual-Context Extension**:

No commands are supported

- **Digitizing Extension**:

No commands are supported

- **Default values for HPGL pens:**

All 256 HPGL pens have the pen thickness 0.35 mm as their default value.
They have the following default values as colors:

Pen	Color
0	white
1	black
2	red
3	green
4	yellow
5	blue
6	magenta
7	cyan
8-255	black

Calcomp commands and pens

In this chapter we have listed all the Calcomp commands and their implementation status in PLOTBASE. The standard pen widths for the 16 Calcomp pens are given at the end of the chapter.

\+ = command is fully supported
– = command is not supported

- **951 Commands**:

paper cutter	–
top of form	–
async	–
start of plot	–
force plot	–
plot copies	+
plotter select	–
negate	–
pattern fill	–
hatch	–
setpat	–
setpen	+

- **Electrostatic Extensions**:

newpen	–
color sequence	–
extended pattern fill	–
area fill	black/white
color modify	–
extended setpen	–
xsetpen	black/white
extended setpat	–
diskIO	–
setlevel	–
newlevel	–
raster fill	–
pixel	–
plot status	–

- **Symbols Commands**:

font selection	+ [not all symbols]
symbol string count	+
plotter symbol scaling	+
controller symbol scaling	+
symbol characteristics	+
extended characters	+
select symbol set 0-4	+
plotting symbol from selected symbol set	+
user defined symbol	+
erase user symbol set	+

- **Circles Commands**:

chordal tolerance	+
circle command for circles	+
circle command for arcs	+

- **Dashlines Commands**:

dash bypass	+
dashline	+

- **Additional Commands**:

no operation	+
pass through 8 bits direct to plotter	
no operation	+
newplot	–
manual	–
pause	–
operator message	–
operator message with pause	–

- **Calcomp pen default values**:

Calcomp pens, currently 16 of them, have the following default values for the pen width:

Pen	Pen width in mm	Pen width in pixels
1	0.06	1
2	0.13	2
3	0.19	3

Pen	Pen width in mm	Pen width in pixels
4	0.25	4
5	0.32	5
6	0.38	6
7	0.44	7
8	0.51	8
9	0.57	9
10	0.64	10
11	0.70	11
12	0.76	12
13	0.83	13
14	0.89	14
15	0.95	15
16	1.02	16

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